

1           1.    A method comprising:  
2                    machining a hole on an integrated circuit with a  
3 scanning probe system; and  
4                    performing a circuit edit through the hole formed  
5 by said system.

1           2.    The method of claim 1 including machining said  
2 hole on the backside of the integrated circuit.

1           3.    The method of claim 2 including machining a hole  
2 as a series of progressively smaller trenches through the  
3 backside of a silicon wafer.

1           4.    The method of claim 1 including providing an  
2 electrical connection between said integrated circuit and  
3 said tool.

1           5.    The method of claim 3 including detecting an open  
2 circuit when the tool reaches an isolation region.

1           6.    The method of claim 3 including detecting a short  
2 circuit when the tool reaches a metallization.

1           7.    The method of claim 1 including covering a  
2 portion of said hole with an insulating layer.

1        8.    The method of claim 7 including covering said  
2    hole with an insulating layer before exposing a  
3    metallization.

1        9.    The method of claim 1 including spring biasing a  
2    cantilever of an atomic force microscopy tool against an  
3    integrated circuit.

1        10.   A method comprising:  
2                forming a first trench having sidewalls and a  
3    bottom in a semiconductor structure using a scanning probe  
4    system;  
5                forming a second trench through said bottom, said  
6    second trench having sidewalls that are spaced more closely  
7    than the sidewalls of said first trench; and  
8                using said trench to perform a circuit edit.

1        11.   The method of claim 10 including biasing an  
2    atomic force microscopy tip against the semiconductor  
3    surface to move atomic layers to form said trenches.

1        12.   The method of claim 11 providing an electrical  
2    connection between said semiconductor structure and said  
3    tip.

1        13. The method of claim 12 including detecting an  
2 open circuit when said tip reaches an isolation region in  
3 said semiconductor structure.

1        14. The method of claim 12 including detecting a  
2 short circuit once the tip reaches a metallization in said  
3 semiconductor structure.

1        15. The method of claim 10 including covering said  
2 first and second trenches with an insulating layer.

1        16. The method of claim 15 including covering said  
2 trenches with an insulating layer before exposing a  
3 metallization.

1        17. The method of claim 11 including spring biasing  
2 said tip against said structure using a cantilever.

1        18. The method of claim 17 including determining the  
2 position of said tip by reflecting a laser beam from said  
3 cantilever.

1        19. An atomic force microscopy tool comprising:  
2            a cantilever to penetrate an integrated circuit;  
3            a tip coupled to said cantilever; and

4           a circuit including a voltage source coupled  
5 between said tip and an integrated circuit.

1           20. The tool of claim 19 wherein said circuit  
2 includes an ammeter.

1           21. The tool of claim 19 wherein said circuit is  
2 connected to a metallization in said integrated circuit  
3 such that once the tip contacts said metallization, a short  
4 circuit is created.

1           22. The tool of claim 19 wherein an open circuit  
2 exists when said tool tip is electrically isolated from  
3 said metallization.